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BINDING DOMAIN-IMMUNOGLOBULIN FUSION PROTEINS

CROSS REFERENCE TO RELATED APPLICATIONS

This application claims the benefit of priority of U.S. Provisional Application No. 60/367,358 (formerly U.S.A.N. 09/765,208, filed January 17, 2001), the contents of which are incorporated by reference in their entirety.

BACKGROUND OF THE INVENTION

The present invention relates generally to immunologically active, recombinant binding proteins, and in particular, to molecularly engineered binding domain-immunoglobulin fusion proteins, including single chain Fv-immunoglobulin fusion proteins. The present invention also relates to compositions and methods for treating malignant conditions and B-cell disorders, including diseases characterized by autoantibody production.

An immunoglobulin molecule is composed of two identical light chains and two identical heavy chains that are joined into a macromolecular complex by interchain disulfide bonds. Intrachain disulfide bonds join different areas of the same polypeptide chain, which results in the formation of loops that along with adjacent amino acids constitute the immunoglobulin domains. Each light chain and each heavy chain has a single variable region that shows considerable variation in amino acid composition from one antibody to another. The light chain variable region, V_L, associates with the variable region of a heavy chain, V_H, to form the antigen binding site of the immunoglobulin, Fv. Light chains have a single constant region domain and heavy chains have several constant region domains. Classes IgG, IgA, and IgD have three constant region domains, which are designated CH1, CH2, and CH3, and the IgM and IgE classes have four constant region domains.

The heavy chains of immunoglobulins can be divided into three functional regions: Fd, hinge, and Fc. The Fd region comprises the V_H and CH1 domains and in